MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department of Community Health
MDCH
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New updates in this issue:

- **Michigan:** Influenza activity remains at low, sporadic levels according to surveillance indicators.
- **National:** Except for the South, most of the country remains at sporadic or no influenza activity.
- **International:** Research shows vaccinating schoolchildren protects the community from influenza.

****2009 Influenza A (H1N1) virus Updates****

Please continue to reference the MDCH influenza website at www.michigan.gov/flu for additional 2009 H1N1 information. Local health departments can find guidance documents in the MI-HAN document library. In addition, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

****Influenza Surveillance Reports****

Michigan Disease Surveillance System: The week ending March 6th showed aggregate influenza, individual influenza, and 2009 novel influenza case levels that were similar to the previous week's levels. All indicators are lower than levels seen at this time last year.

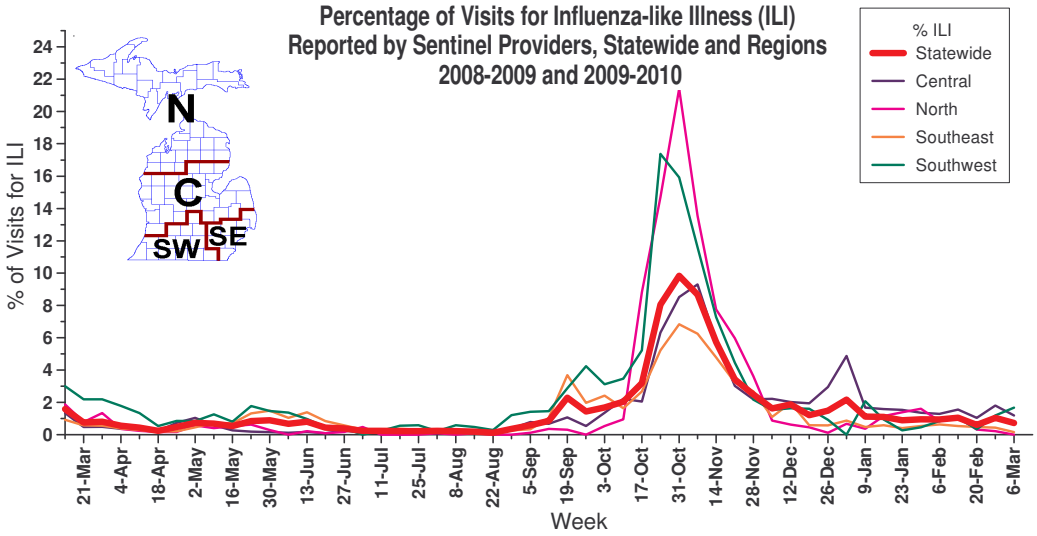
During February 28 - March 6, 2010, 8044 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 2117 hospitalizations and 78 deaths associated with influenza have been reported since September 1, 2009. This report is updated every Tuesday by 5:00 pm and is accessible at "Current H1N1 Activity" on the website http://www.michigan.gov/h1n1flu.

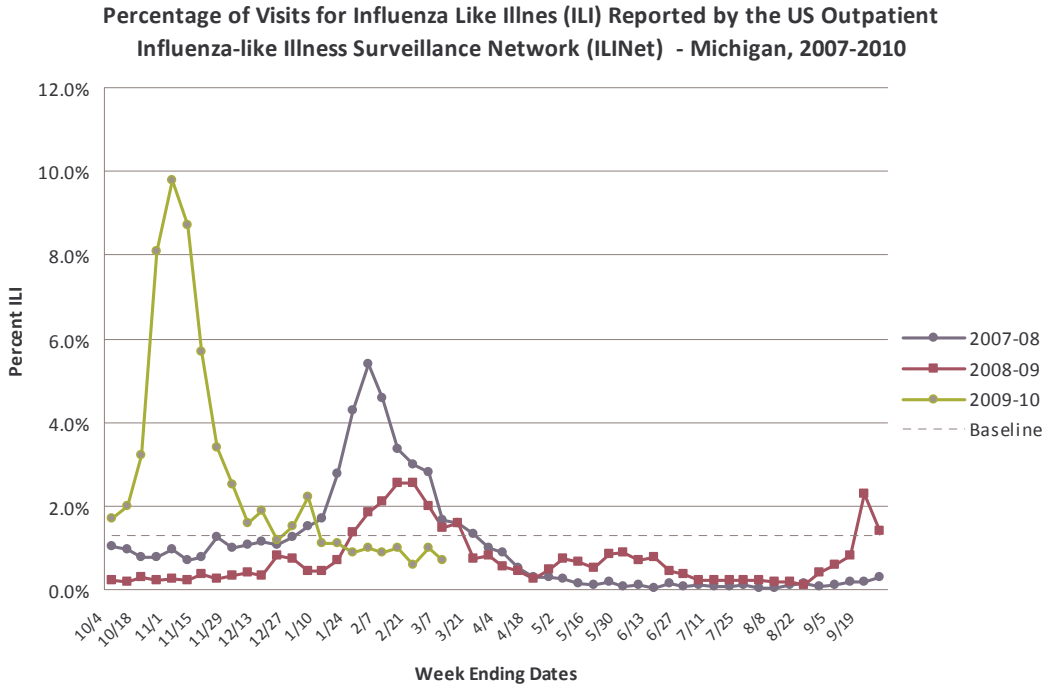
Emergency Department Surveillance: Emergency department visits from constitutional complaints were consistent with thee previous week's levels, while respiratory complaints saw a slight decrease. Respiratory complaints are comparable to what was seen at this time last year, while constitutional complaints are slightly lower. In the past week, there were two constitutional alerts in the N(1) and C(1) influenza surveillance regions, and three respiratory alerts in the N(2) and C(1) influenza surveillance regions.

Over-the-Counter Product Surveillance: Overall, OTC product sales were steady over the last week. All indicators' sales are consistent with levels seen during this time last year.

Sentinel Provider Surveillance (as of March 11): During the week ending March 6, 2010, the proportion of visits due to influenza-like illness (ILI) decreased to 0.7% overall; 62 patient visits due to ILI were reported out of 8,718 office visits. Twenty-nine sentinel sites provided data for this report. Activity increased in one surveillance region: Southwest (1.7%) and decreased in the remaining three surveillance regions: Central (1.2%), North (0.0%) and Southeast (0.2%). Please note that these rates may change as additional reports are received.

As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.





Laboratory Surveillance (as of March 6): During February 28 – March 6, MDCH Bureau of Laboratories identified one 2009 H1N1 influenza isolate. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 606 influenza isolates:

- 2009 Influenza A (H1N1): 605
- Influenza B: 1

14 sentinel labs reported for the week ending March 6, 2010. 3 labs reported sporadic influenza A activity (SE, C). No labs reported influenza B positives. 9 labs reported low levels of RSV positives (SE, SW, C, N), 4 labs reported moderately elevated but decreasing RSV positives (SE, C, SW), and 1 lab reported moderately elevated and increasing RSV positives (SE).

Michigan Influenza Antigenic Characterization (as of March 11): One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of March 11): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

Influenza-Associated Pediatric Mortality (as of March 11): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of March 11): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 1 long term care facility. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SW).

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

National (CDC [edited], March 5): During week 8 (February 21-27, 2010), influenza activity remained at approximately the same levels as last week in the U.S. 263 (6.4%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Over 99% of all subtyped influenza A viruses reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. One influenza-associated pediatric death was reported and was associated with an influenza B virus infection. This death occurred during the 2008-09 influenza season. The proportion of outpatient visits for influenza-like illness (ILI) was 1.7% which is below the national baseline of 2.3%. Two of 10 regions (Regions 4 and 9) reported ILI above region-specific baseline levels. No states reported widespread influenza activity, four states reported regional influenza activity, Puerto Rico and eight states reported local influenza activity, the District of Columbia, Guam, and 34 states reported sporadic influenza activity, four states reported no influenza activity, and the U.S. Virgin Islands did not report.

WHO and NREVSS collaborating laboratories located in all 50 states and Washington, D.C. report to CDC the number of respiratory specimens tested for influenza and the number positive by influenza type and subtype. The results of tests performed during the current week are summarized in the table below.

	Week 8
No. of specimens tested	4,128
No. of positive specimens (%)	263 (6.4%)
Positive specimens by type/subtype	
Influenza A	262 (99.6%)
A (2009 H1N1)	195 (74.4%)
A (subtyping not performed)	66 (25.2%)
A (unable to subtype)	0 (0.0%)
A (H3)	1 (0.4%)
A (H1)	0 (0.0%)
Influenza B	1 (0.4%)

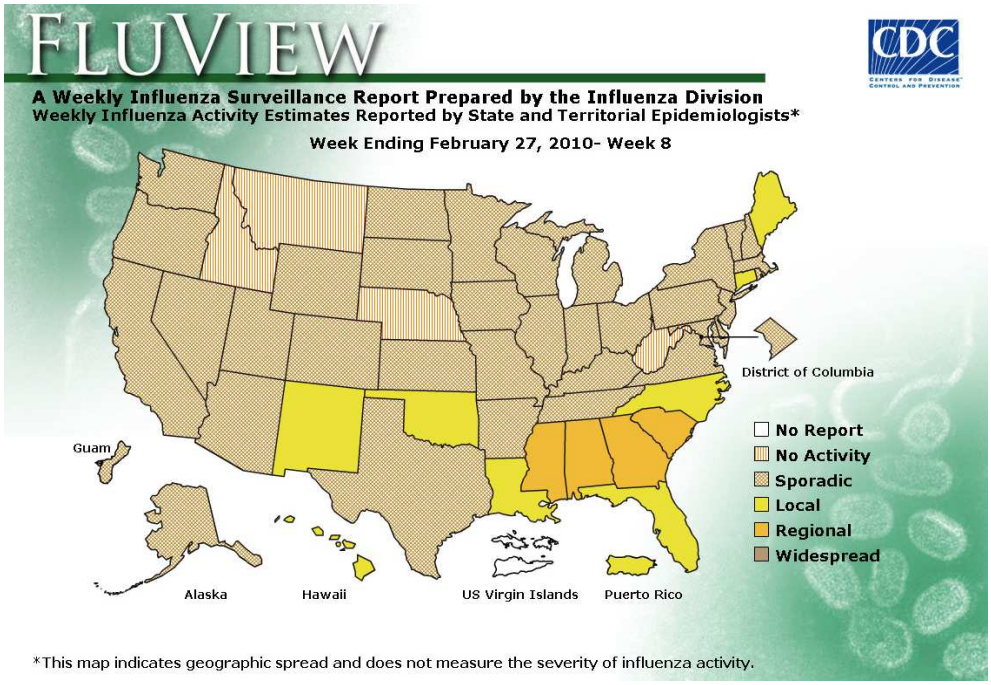
To access the entire CDC weekly surveillance report, visit http://www.cdc.gov/flu/weekly/fluactivity.htm

From http://www.cdc.gov/h1n1flu/updates/us/#totalcases:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30, 2009–Feb 27, 2010

Cases Defined by	Hospitalizations	Deaths
Influenza Laboratory-Tests**	40,805	2,009

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.



International (WHO, March 8): During weeks 5-6, pandemic influenza A (H1N1) 2009 viruses persisted in some countries around the world although the majority of Northern Hemisphere countries reported decreasing activity. The pandemic virus continued to be the predominant circulating influenza virus in all countries where influenza was reported with the exception of China and China Hong Kong Special Administrative Region where influenza B was the predominant virus. An increasing number of countries in the Northern Hemisphere also reported sporadic influenza B activity with only a few reporting seasonal influenza A (H1N1) and (H3N2) detections. Activity in the Southern Hemisphere was variable but mainly sporadic.

Widespread outbreaks of pandemic influenza A (H1N1) 2009 were reported from Armenia. Regional outbreaks of pandemic influenza A (H1N1) 2009 activity were reported in Austria, China, Ecuador, Georgia, Greece, Japan, Mongolia, Peru, Republic of Moldova and Serbia. Local levels of pandemic influenza A (H1N1) 2009 activity were reported in Bangladesh, Cambodia, Costa Rica, Indonesia, Jamaica, Panama, Paraguay, the Russian Federation, Thailand and Ukraine.

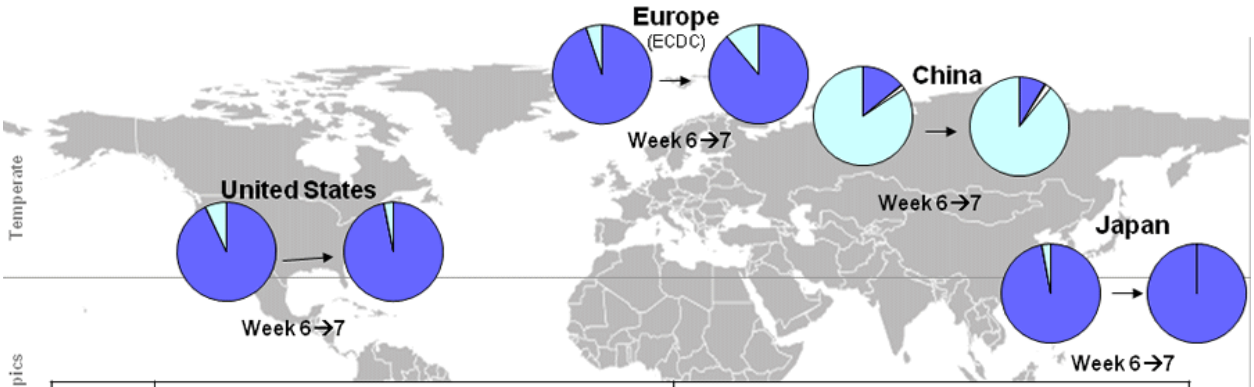
Sporadic pandemic influenza A (H1N1) 2009 activity was reported in Albania, Algeria, Argentina, Australia, Belarus, Belgium, Brazil, Bulgaria, Cameroon, Canada, Chile, China Hong Kong Special Administrative Region, Columbia, Croatia, Czech Republic, Denmark, Estonia, Ethiopia, France, Germany, Ghana, Hungary, Iceland, Iran, Israel, Italy, Jamaica, Kenya, Latvia, Lithuania, Luxembourg, Madagascar, Malta, Mexico, Netherlands, Norway, Poland, Portugal, , Romania, Rwanda, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Tunisia, Turkey, United Kingdom, United States of America and Venezuela.

The level of seasonal influenza activity was generally low with the exception of China where influenza B activity continued to increase. Influenza H1N1 and H3N2 was also detected at low levels in China. Sporadic seasonal influenza activity was observed in Algeria (H3), Belgium (B), Bulgaria (B), Canada (H1), China Hong Kong Special Administrative Region (B), Democratic Republic of Congo (H3), Estonia (B), France (B), Germany (B), Ghana (H3), Guatemala (B), Iran (B), Japan (B), Kenya (B), Mongolia (B), Norway (B), Poland (B), Romania (B), Republic of Korea (B), Rwanda (H3), the Russian Federation (H1,H3,B), Senegal (H1,H3), Sweden (B), Switzerland (B), Thailand (B), Tunisia (H3), Turkey (B), Uganda (B), Ukraine (B), United Kingdom (B), United Republic of Tanzania (H3,B), United States of America (B) and Zambia (H1,B).

Angola, Azerbaijan, Bosnia and Herzegovina, Central African Republic, Dominica, Kazakhstan, Kyrgyzstan, Montenegro, Mozambique, New Caledonia, New Zealand and Uzbekistan reported no influenza activity.

Proportion of Influenza Subtypes in Select Countries

Week 7: Feb 14/15 – Feb 20/21



	Week 6 Feb 7/8 - Feb 13/14					Week 7 Feb 14/15 - Feb 20/21				
	2009 H1N1	Influenza A (H1)	Influenza A (H3)	Influenza B (total)	Total	2009 H1N1	Influenza A (H1)	Influenza A (H3)	Influenza B (total)	Total
United States	53 (93.0%)	0	0	4 (7.0%)	57	185 (96.9%)	0	0	6 (3.1%)	191
Europe	36 (94.7%)	0	0	2 (5.3%)	38	16 (88.9%)	0	0	2 (11.1%)	18
China	164 (14.1%)	3 (0.3%)	16 (1.4%)	980 (84.3%)	1,163	44 (8.5%)	2 (0.4%)	10 (1.9%)	460 (89.1%)	516
Japan	99 (97.1%)	0	0	3 (2.9%)	102	73 (100%)	0	0	0	73

Data Sources: Canada: FluWatch (http://www.phac-aspc.gc.ca/fluwatch/index-eng.php)
China and Japan: FluNet (http://gamapserver.who.int/GlobalAtlas/home.asp)
Europe: ECDC (http://www.ecdc.europa.eu/en/Pages/home.aspx)
United States: CDC

MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending March 6, 2010.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

International, Disease Severity (Eurosurveillance edition 2010; 15(9) [abstract], March 4): Infection with the recently emerged pandemic influenza A (H1N1) 2009 virus causes mild disease in the vast majority of cases, but sporadically also very severe disease. A specific mutation in the viral haemagglutinin (D222G) was found with considerable frequency in fatal and severe cases in Norway, but was virtually absent among clinically mild cases. This difference was statistically significant and our data are consistent with a possible causal relationship between this mutation and the clinical outcome. The 2009 influenza A (H1N1) pandemic has been characterised by mild and self-limiting disease in the overwhelming majority of cases. However, severe and fatal cases, many of them with primary viral pneumonia, have been occurring in age groups where such clinical outcomes are very rarely seen in seasonal influenza. It is important to better understand what viral and host-related factors determine this dichotomy.

The entire publication is available at http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19498.

International, Poultry (OIE [edited], March 9): Low pathogenic avian influenza virus (H7); Denmark
Date of first confirmation of the event: 09/03/2010; Date of Start of Event: 05/03/2010
Date of report: 09/03/2010; Date Submitted To OIE: 09/03/2010
Regional Veterinary and Food Administration: East; Municipality: Næstved; Location: Fuglebjerg
Species: Birds; Susceptible: 195; Cases: - ; Deaths: 0; Destroyed: 195; Slaughtered: 0
Affected Population: A breeding farm with 190 mallards and 5 hens. The suspicion arose on 5 March 2010 due to positive samples taken in connection with the surveillance programme for avian influenza.

Epidemiological comments: Control measures will be applied in accordance with Council Directive 2005/94/EC. This includes a 1 km restriction zone around the affected premises. More information is available on the Danish Veterinary and Food Administration website at www.dvfa.dk.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine, Movement control inside the country, Zoning
To be applied: Stamping out, Disinfection of infected premises/establishment(s); Animals treated: No

International, Poultry (Xinhua News Agency, March 6): More bird flu H5N1 cases have been found in northwestern Myanmar's Sagaing division with some chickens suspected of dying of virulent avian influenza in a poultry farm in Yinmapin township of the division early this week, an official daily reported Saturday.

The unusual death of chickens were proved to have been caused by highly pathogenic avian Influenza (HPAI) after laboratory tests conducted in Yangon and Mandalay, said the New Light of Myanmar.

The findings have been further reported to Food and Agriculture Organization (FAO) and World Animal Health Organization (OIE), the report said.
According to the report, the authorities have culled chickens and destroyed eggs bred in the farm as its control measures.

It was the third bird flu H5N1 case since the disease re-struck Myanmar in February, nearly two years after the country was free from the disease.

According to the Livestock Breeding and Veterinary Department (LBVD), in the first case taking place in Mayangong township, unusual deaths of some chickens were found in a farm where 2,500 chickens were bred and the suspected deaths were proved to have been caused by the HPAI after experiment.

In the second case in Mingaladon township, two domestically- bred chickens died of virulent avian influenza in a poultry farm and were later confirmed with carrying the virus after laboratory test.

The authorities took control measures by culling hundreds of similar chickens, some ducks and eggs, banning sale of chickens and eggs in six bazaars, 7 kilometers around the poultry farm where bird flu recurred, to prevent the spread of the disease.

People have also been being urged to step up bio-security measures, change of livestock breeding system, avoidance of illegal import, transport and trading of chickens and its products, and prompt report of suspected bird flu case.

International, Vaccination (New York Times [edited], March 10): An unusual study done in 49 remote Hutterite farming colonies in western Canada has provided the surest proof yet that giving flu shots to schoolchildren protects a whole community from the disease.

Although previous studies have demonstrated what scientists call “herd immunity,” none have been so incontrovertible, because they were done in less isolated places with more sources of flu passing through. Also, only one other study, done 42 years ago, immunized over 80 percent of a community’s children, as this one did. Success repeated in many separate communities with very high vaccination rates implies that the shots themselves — rather than luck, viral mutations, hand-washing or any other factor — were the crucial protective element.

The study, done by scientists from several Canadian universities and St. Jude’s Children’s Research Hospital in Tennessee, was paid for by the governments of Canada and the United States. It was published online Tuesday by The Journal of the American Medical Association.

“This is quite a definitive study, and it took a Herculean effort,” said Dr. Carolyn B. Bridges, an expert in influenza epidemiology at the Centers for Disease Control and Prevention. “My hat’s off to them.”

Dr. Anthony S. Fauci, director of the National Institute for Allergy and Infectious Diseases, which supported the project, called it “a really nice study” and added that, even though it was done with seasonal flu shots in the 2008-9 winter, its results validated the American government’s decision to vaccinate children first during the recent swine flu pandemic.

“Not only was that clearly needed to protect the kids, but they probably wound up protecting the older people, too,” Dr. Fauci said.

Unique focus group
To do his unique study, the lead investigator, Dr. Mark Loeb of McMaster University in Ontario, made “literally hundreds of calls” to 187 Hutterite communities in Alberta, Saskatchewan and Manitoba, asking them to join.

Like the Mennonites and the Amish, the Hutterites are descended from a 16th-century Swiss Protestant sect. They believe in adult baptism, refuse military service, speak a German dialect and dress in homemade black jackets and long skirts.

“People from different groups can be identified by the size of the polka dots on their bonnets,” Dr. Loeb said.

Although they frown on television and radio, Hutterites drive cars and modern tractors. More important from a medical point of view, they live in communities of up to 160 people, own everything jointly, attend their own schools, eat in one dining hall and have little contact with the outside world. Each community governs itself, but, in Dr. Loeb’s words, “after one very with-it Alberta bishop recognized the study’s benefit to the rest of the world and backed it,” almost 50 communities voted to participate.

Hutterites have no religious objections to Western medicine, that very “with-it” bishop, John K. Stahl, 76, said in a telephone interview. While deliberately cut off, they perform acts of generosity — for example, many donate blood frequently.

Some do not vaccinate their children, but not for religious reasons. “Some families are herb-minded rather than drug-minded,” Bishop Stahl explained.

'Protective effect'
In 25 of the colonies that joined, all children ages 3 to 15 received flu shots in late 2008; in 24 others, they received hepatitis A vaccine instead. (Hepatitis was not studied, but to keep the investigators from knowing which colonies received flu vaccine, they had to offer placebo shots, and hepatitis shots do some good while sterile water injections do not.)

By last June, more than 10 percent of all the adults and children in colonies that received the placebo had had laboratory-confirmed seasonal flu. Less than 5 percent of those in the colonies that received flu shots had.

There was a 60 percent “protective effect” for the whole community, the study concluded. It implies, Dr. Bridges said, that giving flu shots only to schoolchildren would protect the elderly just as well as giving flu shots to the elderly themselves.

The C.D.C. would never recommend that, she cautioned, “because you still should vaccinate high-risk people.”

Michigan Wild Bird Surveillance (USDA, as of March 11): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 111 Michigan samples tested to date, including 58 live wild birds, 39 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 19,002 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan’s Emerging Disease website at http://www.michigan.gov/emergingdiseases.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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Table 1. H5N1 Influenza in Poultry (Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 3/8/10)

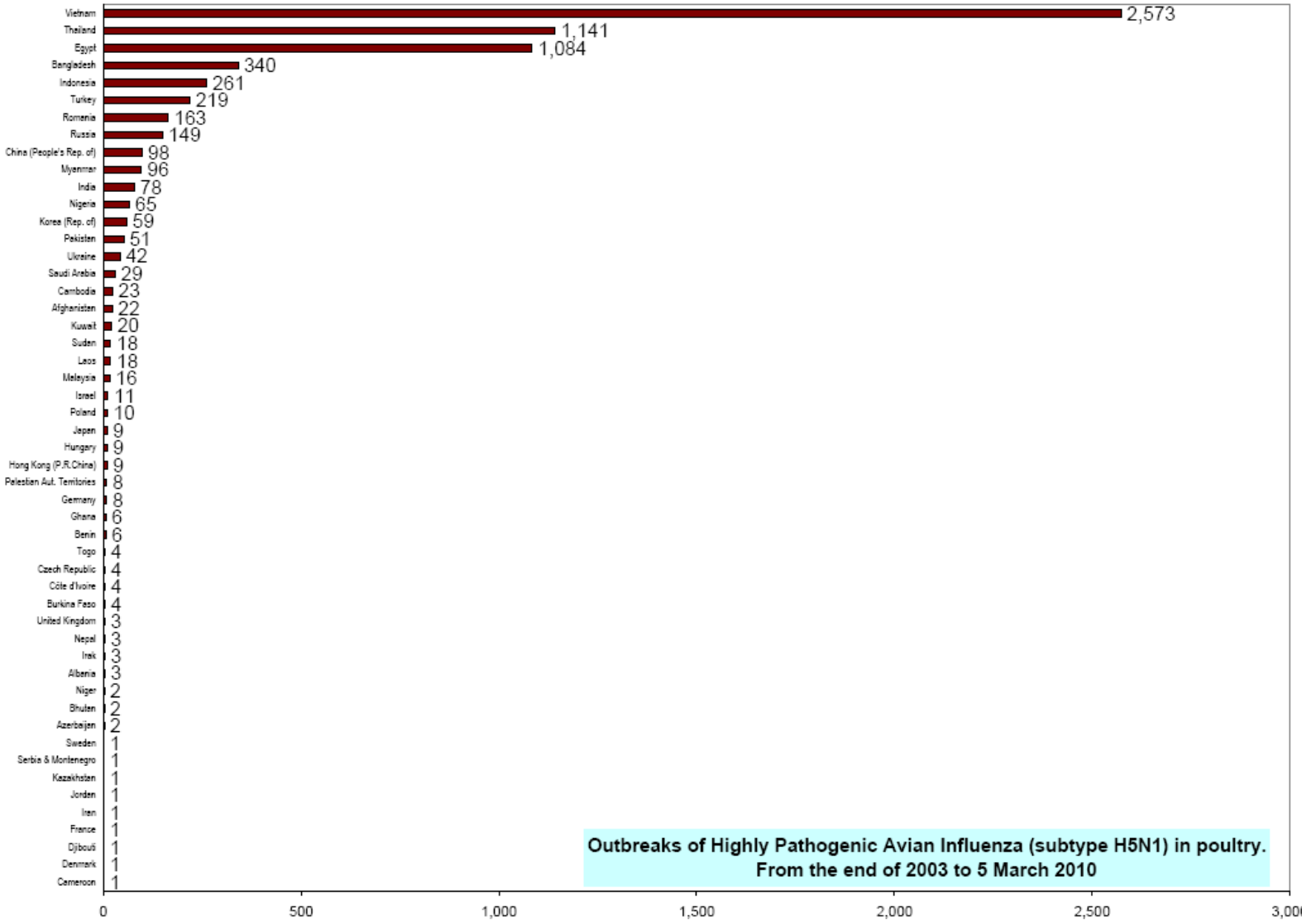

Table 2. H5N1 Influenza in Humans - Cases up to March 4, 2010. http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_02_17/en/index.html. Downloaded 3/4/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	0	0	9	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	0	0	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	14	3	104	30
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	1	1	163	135
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	3	1	115	58
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	18	5	486	287